

REMARKS**DRAWING OBJECTION**

The Examiner requisitioned a replacement Fig. 1 in compliance with MPEP 608.02(g). The Examiner submitted that Fig. 1 should be designated by a legend, such as --Prior Art--, to identify that it illustrates old subject matter.

The Applicant points out that Fig. 1 already includes such as legend. The Applicant has attached a marked-up copy of Fig. 1 with the legend -- Prior Art -- circled. Accordingly, the Applicant requests the Examiner withdraw the objection to Fig. 1.

CLAIM REJECTIONS

Claims 1 to 21 are presently pending in the subject patent application.

Claims 1, 8, 9, 10, 12, 13, 14, 17, 18, 20 and 21 stand rejected under 35 USC 103(a). With the current amendment, Claims 3, 9, 13 to 16, 18 and 19 have been cancelled, without prejudice. Claims 1, 2, 4 to 8, 10 to 12, 17, 20 and 21 have been amended, and new Claims 22 to 30 added, as set out above.

INDEPENDENT CLAIM 1

Independent Claim 1 stands rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 8, line 27 to page 9, line 8) in view of Otani (US 6,351,469) and Packer (US 6,038,216). However, the Examiner submitted that Claims 2 to 7 would be allowable if rewritten in independent form to include all the limitations of the base claim and the intervening claims.

Independent Claim 1 has been amended to include subject matter from dependent Claims 2 and 3.

Dependent Claim 2, as originally filed, clarified that the intermediate protocol layer is configured to update the running average of acknowledgement times based on the average wait time for the

receipt of acknowledgement signals corresponding to successfully transmitted datagrams. Independent Claim 1 has been amended to clarify that the intermediate protocol layer is configured to maintain a running average of acknowledgment times of successfully transmitted datagrams. Accordingly, while Claim 1 has not been amended to include the exact language of original Claim 2, Claim 1 has been amended to include subject matter corresponding to that of original Claim 2.

Further, the Applicant notes that the Examiner referred to Packer column 1, line 61 to column 2, line 9, as teaching a retransmission mechanism based on the running average of round-trip times for acknowledgment receipt. The section referenced by the Examiner refers to the Retransmit Timeout Mechanism (RTO) performed by the transport layer Transmission Control Protocol (TCP). As such, the RTO describes the mechanism for initiating retransmission at the transport layer based on the Round Trip Time (RTT) for successful transmission of transport layer data segments. Packer does not teach or suggest initiating retransmission of link layer datagrams based on the running average of acknowledgment times of successfully transmitted datagrams, as required by amended Claim 1. Accordingly, the Applicant submits that Claim 1, as amended herein, recites allowable subject matter.

Further, since Claims 2, and 4 to 7 depend from Claim 1, the foregoing submissions apply equally to Claims 2, and 4 to 7.

INDEPENDENT CLAIM 8

Independent Claim 8 stands rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 9, line 21 to page 10, line 3) in view of Packer (US 6,038,216).

Dependent Claims 9 and 10 stand rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 2, lines 12 to 19; page 9, line 21 to page 10, line 3) in view of Packer (US 6,038,216) and Lin (US 6,393,050).

However, the Examiner submitted that Claim 11 would be allowable if rewritten in independent form to include all the limitations of the base claim and the intervening claims.

Independent Claim 8 has been amended to include subject matter from dependent Claims 11 and 3.

Dependent Claim 11, as originally filed, clarified that the method involves the step of updating the running average of acknowledgement times based on the average wait time for the receipt of acknowledgement signals corresponding to successfully transmitted datagrams. Independent Claim 8 has been amended to clarify that the method maintains a running average of acknowledgment times of successfully transmitted ones of the datagrams. Accordingly, while Claim 8 has not been amended to include the exact language of original Claim 11, Claim 8 has been amended to include subject matter corresponding to that of original Claim 11.

Further, the Applicant notes that the Examiner referred to Packer column 1, line 61 to column 2, line 9, as teaching a retransmission mechanism based on the running average of round-trip times for acknowledgment receipt. As discussed above, the section referenced by the Examiner refers to the Retransmit Timeout Mechanism (RTO), which initiates retransmission at the transport layer based on the Round Trip Time (RTT) for successful transmission of transport layer data segments. Packer does not teach or suggest initiating retransmission of link layer datagrams based on the running average of acknowledgement times of successfully transmitted datagrams, as required by amended Claim 8. Accordingly, the Applicant submits that Claim 8, as amended herein, recites allowable subject matter.

Further, since Claims 10, 11, 22 and 23 depend from Claim 8, the foregoing submissions apply equally to Claims 10, 11, 22 and 23.

INDEPENDENT CLAIM 12

Independent Claim 12 and dependent Claim 13 stand rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 8, line 28 to page

10, line 3) in view of Otani (US 6,351,469). Dependent Claim 14 stands rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art in view of Otani (US 6,351,469) and Packer (US 6,038,216).

However, the Examiner submitted that Claims 15 and 16 would be allowable if rewritten in independent form to include all the limitations of the base claim and the intervening claims.

Independent Claim 12 has been amended to include subject matter from page 22, line 27 to page 23, line 9. In particular, Claim 12 has been amended to clarify that the transport layer of the intermediate protocol layer formats the electronic data into at least one transport layer data segment, and the data link layer of the intermediate protocol layer formats the transport layer data segments into at least one link layer datagram. Further, Claim 12 clarifies that the transport layer header and the link layer header have a combined length less than a TCP/IP header, and that the application layer maps the electronic data between the mobile wireless communication device and the network resource based on a transport layer session parameter that identifies the format of the encapsulated data.

Although the foregoing subject matter was not previously claimed, the claim amendments to Claim 12 should not necessitate a new search. The Applicant points out that MPEP 904.02 states that the Examiner's prior art search should cover not only the claimed subject matter, but also the disclosed features which might reasonably be expected to be claimed. Further, MPEP 904.03 states that in doing a complete search, the Examiner should find and cite references that, while not need for treating the claims, would be useful for forestalling the presentation of claims to the subject matter regarded by the applicant has his or her invention. In selecting the references, the Examiner is not called upon to cite all references that may be available, but rather must cited the best references.

At page 13, lines 2 to 7 of the specification as originally filed, the Applicant explained that the TCP/IP header (40-bytes in length) makes inefficient use of the wireless bandwidth. The Applicant explained that the present invention addressed this deficiency by replacing the TCP and IP layers with a novel intermediate protocol layer. At page 23, line 9 of the specification as

originally filed, the Applicant explained that the header size of the intermediate protocol layer is only 8 bytes, thereby making more efficient use of the wireless bandwidth. Further, the structure of this novel intermediate layer was recited in Claims 20 and 21 of the specification as originally filed. As a result, it would have been reasonable for the Examiner to have expected the Applicant to claim a protocol layer having a header size less than a TCP/IP header. Since an Examiner must conduct a proper search prior to issuing a first Official Action, the Examiner would already have searched this aspect of the invention. Accordingly, no additional search to assess the patentability of the invention recited in Claim 12 should be required.

In order to sustain a *prima facie* obviousness rejection of the invention recited in claim 12 in view of the modification of a primary reference, there must be some motivation or suggestion in the cited art for the modification. As the Court of Appeals for the Federal Circuit explained in *Re Sang-Su Lee* 00-1158, Serial No. 07/631,240, January 18, 2002, there must be some concrete evidence in the record for the motivation or suggestion for a claim rejection under 35 USC 103(a). Further, the appropriate inquiry is not whether the cited art could be modified to arrive at a claimed invention, but rather whether the cited art would have suggested the desirability of the invention. In addition, to sustain a *prima facie* obviousness rejection, a hypothetical person of ordinary skill must have a reasonable prospect of successfully achieving the claimed invention based on the combination of references.

The Examiner rejected Claims 12 to 14 under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 8, line 28 to page 10, line 3) in view of Otani (US 6,351,469) and Packer (US 6,038,216). In the rejection of Claim 12, the Examiner noted that Otani taught that an intermediate protocol layer could be provided to monitor message data when the message data is exchanged between transmitting and receiving units. However, the Examiner did not provide any evidence indicating that a person of ordinary skill would be motivated by Otani such that the monitored message data had a header length less than a TCP/IP header, or to use a transport layer parameter to identify the format of the message data.

In the rejection of Claim 14, the Examiner noted that Packer taught that the unsuccessfully transmitted messages were retransmitted at a retransmission rate that was based on the running

average of acknowledgment times for successfully transmitted message datagrams. The Examiner did not provide any evidence indicating that a person of ordinary skill would be motivated by Packer to make use of an intermediate protocol layer that would produce a message having a header length less than a TCP/IP header, or that the header included a transport layer parameter that identified the format of the message.

Further, as discussed above with reference to Claims 1 and 8, the passage in Packer referenced by the Examiner refers to the Retransmit Timeout Mechanism (RTO) implemented by the standard Transport Control Protocol (TCP), which initiates retransmission at the transport layer based on the Round Trip Time (RTT) for successful transmission of transport layer data segments. Packer does not teach or suggest using a non-standard TCP header to implement the RTO. Thus, Packer would not suggest that the intermediate protocol layer would produce a message having a header length less than a TCP/IP header, or that the header would include a transport layer parameter that identified the format of the message.

In summary, the Examiner did not provide any evidence that a person of ordinary skill would be motivated by Otani and/or Packer to modify the conventional TCP/IP header in the wireless environment to have a considerably-shorter header length, or that the header would include a transport layer parameter that identified the format of the message. Further, the Examiner did not provide any evidence that the person of ordinary skill would have a reasonable prospect of successfully making this modification to the conventional TCP/IP header, based on the teachings of Otani and/or Packer. Accordingly, the Applicant submits that the invention recited in independent Claim 12, as amended herein, cannot be considered obvious in view of the cited references.

Further, since Claims 24 to 27 depend from Claim 12, the foregoing submissions apply equally to Claims 24 to 27.

INDEPENDENT CLAIM 17

Independent Claim 17 stands rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 2, line 4 to 10; page 8, line 28 to page 10, line 14) in view of Renouard (US 6,161,123). Dependent Claim 18 stands rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art in view of Renouard (US 6,161,123) and Packer (US 6,038,216).

However, the Examiner submitted that Claim 19 would be allowable if rewritten in independent form to include all the limitations of the base claim and the intervening claims.

Independent Claim 17 has been amended to include subject matter from page 22, line 27 to page 23, line 9. In particular, Claim 17 has been amended to clarify that the method encapsulates the message data into at least one transport layer data segment, and encapsulates the transport layers into at least one link layer datagram. Further, Claim 17 clarifies that the transport layer header and the link layer header have a combined length less than a TCP/IP header, and that the application protocol layer maps the message data between the mobile wireless communication device and the network resource based on a transport layer session parameter that identifies the format of the encapsulated data.

Although the foregoing subject matter was not previously claimed, as discussed above with respect to Claim 12, it would have been reasonable for the Examiner to have expected the Applicant to claim a method of wireless message transmission in which the header size of the message datagrams was less than a TCP/IP header. Since an Examiner must conduct a proper search prior to issuing a first Official Action, the Examiner would already have searched this aspect of the invention. Accordingly, no additional search to assess the patentability of the invention recited in Claim 17 should be required.

Further, as discussed above, in order to sustain a *prima facie* obviousness rejection of the invention recited in claim 17 in view of the modification of a primary reference, there must be some motivation or suggestion in the cited art indicating that the hypothetical person of ordinary skill would have modified the primary reference to achieve the claimed invention. In addition, to

sustain a *prima facie* obviousness rejection, a hypothetical person of ordinary skill must have a reasonable prospect of successfully achieving the claimed invention based on the combination of references.

The Examiner rejected Claims 17 to 18 under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 2, line 4 to 10; page 8, line 28 to page 10, line 14) in view of Renouard (US 6,161,123) and Packer (US 6,038,216). In the rejection of Claim 17, the Examiner noted that Renouard taught a data processing system comprising a server and a handheld device which acknowledges receipt of data received from the other. The Examiner did not provide any evidence indicating that a person of ordinary skill would be motivated by Renouard to modify the data processing system described therein to make use of an intermediate protocol layer that would produce a message having a header length less than a TCP/IP header, with the header including a transport layer parameter that identified the format of the message.

In the rejection of Claim 18, the Examiner noted that Packer taught a retransmission mechanism in which unacknowledged data was prompted for retransmission after a time out interval that was based on the running average of round-trip acknowledgment times. The Examiner did not provide any evidence indicating that a person of ordinary skill would be motivated by Packer to make use of an intermediate protocol layer that would produce a message having a header length less than a TCP/IP header, or that the header would include a transport layer parameter that identified the format of the message.

Further, as discussed above with reference to Claim 12, the passage in Packer referenced by the Examiner refers to the Retransmit Timeout Mechanism (RTO) implemented by the standard Transport Control Protocol (TCP), which initiates retransmission at the transport layer based on the Round Trip Time (RTT) for successful transmission of transport layer data segments. Packer does not teach or suggest using a non-standard TCP header to implement the RTO. Thus, Packer would not suggest that the intermediate protocol layer would produce a message having a header length less than a TCP/IP header, or that the header would include a transport layer parameter that identified the format of the message.

In summary, the Examiner did not provide any evidence that a person of ordinary skill would be motivated by Renouard and/or Packer to modify the conventional TCP/IP header in the wireless environment to have a considerably-shorter header length, or that the header would include a transport layer parameter that identified the format of the message.. Further, the Examiner did not provide any evidence that the person of ordinary skill would have a reasonable prospect of successfully making this modification to the conventional TCP/IP header, based on the teachings of Renouard and/or Packer. Accordingly, the Applicant submits that the invention recited in independent Claim 17, as amended herein, cannot be considered obvious in view of the cited references.

Further, since Claims 18, and 28 to 30 depend from Claim 17, the foregoing submissions apply equally to Claims 18, and 28 to 30.

INDEPENDENT CLAIM 20

Independent Claim 20 and dependent Claim 21 stand rejected under 35 USC 101 for being directed to non-statutory subject matter. Independent Claim 20 and dependent Claim 21 also stand rejected under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 9, line 21 to page 10, line 3) in view of Hansen (US 6,697,871).

Independent Claim 20 has been amended to relate to an electronic signal.

Independent Claim 20 has also been amended to include subject matter from page 22, line 27 to page 23, line 9. In particular, Claim 20 has been amended to clarify that the transport layer header and the link layer header have a combined length less than a TCP/IP header, and that the transport layer header includes a transport layer session parameter that identifies the data format of the message.

Although the foregoing subject matter was not previously claimed, as discussed above with respect to Claim 12, it would have been reasonable for the Examiner to have expected the

Applicant to claim an electronic signal for use in wireless message transmission in which the header size of the message was less than a TCP/IP header. Since an Examiner must conduct a proper search prior to issuing a first Official Action, the Examiner would already have searched this aspect of the invention. Accordingly, no additional search to assess the patentability of the invention recited in Claim 20 should be required.

Further, as discussed above, in order to sustain a *prima facie* obviousness rejection of the invention recited in claim 20 in view of the modification of a primary reference, there must be some motivation or suggestion in the cited art indicating that the hypothetical person of ordinary skill would have modified the primary reference to achieve the claimed invention. In addition, to sustain a *prima facie* obviousness rejection, a hypothetical person of ordinary skill must have a reasonable prospect of successfully achieving the claimed invention based on the combination of references.

The Examiner rejected Claims 20 to 21 under 35 USC 103(a) as being unpatentable over the Applicant's description of the state of the art (as at page 9, line 21 to page 10, line 3) in view of Hansen (US 6,697,871). As discussed above, Claim 20 has been amended to clarify that the transport layer header and the link layer header have a combined length less than a TCP/IP header, and that the transport layer header includes a transport layer session parameter that identifies the data format of the message. The Examiner did not provide any evidence indicating that a person of ordinary skill would be motivated by Hansen so that the protocol control information of the various protocol data units produced a header having a combined length less than a TCP/IP header, with the transport layer header including a transport layer session parameter that identifies the data format of the message. Accordingly, the Applicant submits that the invention recited in independent Claim 20, as amended herein, cannot be considered obvious in view of the cited references.

In the rejection of Claim 20, the Examiner stated that the "class indicator" of Claim 20 corresponded to the source port number of the state of the art. With the current amendment, the recital of a "class indicator" was removed from Claim 20. Accordingly, this aspect of the Examiner's rejection is moot. However, since the recital of a "class indicator" was relocated to

Claim 21 with the current amendment, the Applicant points out that the Examiner's interpretation of the claim element "class indicator" is inconsistent with the Applicant's definition of "class indicator" in the specification.

As the Applicant explained at page 23, lines 11 to 22 of the specification, the message class identifier 404 identifies the class of the transport layer data segment 300 (eg. a transport layer ACK, a message from an access point 210, a message from a wireless terminal 204, or a broadcast beacon). In contrast, the source port number, as explained in the TCP specification (see, for example, RFC 793), does not identify the class of a transport layer data segment, but instead identifies the type of application layer process from which the message originated.

In the rejection of Claim 21, the Examiner also noted that Hansen taught that as information passes down through the layers of the protocol stack, each layer encapsulates prior information with the protocol control information in the protocol data unit. However, the Examiner incorrectly noted that Hansen taught that the protocol control information included a radio address that is uniquely associated with the originator of a data segment. Hansen does not disclose the use of a radio address. Rather, as the patentee discloses at column 6, lines 39 to 44, Hansen makes use of the standard TCP protocol, which does not include a radio address parameter.

In summary, the Examiner did not provide any evidence that a person of ordinary skill would be motivated by Hansen to modify the conventional TCP/IP header to have a considerably-shorter header length, with the transport layer header including a transport layer session parameter that identifies the data format of the message. Rather, the patentee clearly points out that the Hansen relies on standard transport control protocols. Further, the Examiner did not provide any evidence that the person of ordinary skill would have a reasonable prospect of successfully making this modification to the conventional TCP/IP header, based on the teachings of Hansen. Accordingly, the Applicant submits that the invention recited in Claims 20 and 21, as amended herein, cannot be considered obvious in view of the cited references.

In view of the foregoing, the Applicant submits that the invention as claimed herein defines patentable subject matter in view of the cited references. Accordingly, the Applicant requests that the Examiner allow the subject patent application to proceed to allowance.

Respectfully submitted,
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